

1913
M178

Mc GREW

A Gymnasium & Stadium
for the Olympic Games

Architecture

B. S.

1913

THE UNIVERSITY
OF ILLINOIS
LIBRARY

1913
M178

The person charging this material is responsible for its return to the library from which it was withdrawn on or before the **Latest Date** stamped below.

Theft, mutilation, and underlining of books are reasons for disciplinary action and may result in dismissal from the University.

To renew call Telephone Center, 333-8400

UNIVERSITY OF ILLINOIS LIBRARY AT URBANA-CHAMPAIGN

BUILDING USE ONLY

OCT 23 1979

OCT 23 1979

BUILDING USE ONLY

OCT 29 1979

OCT 29 1979

BUILDING USE ONLY

OCT 30 1979

OCT 30 1979

BUILDING USE ONLY

RETURN TO THESES
COLLECTION

L161—O-1096



Digitized by the Internet Archive
in 2014

<http://archive.org/details/gymnasiumstadium00mcgr>

**A GYMNASIUM AND STADIUM
FOR THE OLYMPIC GAMES**

BY

CHARLES BABCOCK MCGREW

THESIS

FOR

DEGREE OF BACHELOR OF SCIENCE

IN

ARCHITECTURE

COLLEGE OF ENGINEERING

UNIVERSITY OF ILLINOIS

1913

1913
M178

UNIVERSITY OF ILLINOIS

June 6, 1913

THIS IS TO CERTIFY THAT THE THESIS PREPARED UNDER MY SUPERVISION BY

CHARLES BABCOCK MCGREW

ENTITLED

A GYMNASIUM AND STADIUM FOR THE OLYMPIC GAMES

IS APPROVED BY ME AS FULFILLING THIS PART OF THE REQUIREMENTS FOR THE

DEGREE OF

BACHELOR OF SCIENCE IN ARCHITECTURE

Frederick W. Mann

Instructor in Charge

APPROVED:

Frederick W. Mann

HEAD OF DEPARTMENT OF

Architecture



TABLE OF CONTENTS

A GYMNASIUM AND STADIUM FOR THE OLYMPIC GAMES

	Page
General Discussion	1
Program	10
Description	14
Construction	17
Plumbing	17
Heating	18
Electric Lighting	19
Other Modern Conveniences	19
Bibliography	20

A GYMNASIUM AND STADIUM FOR THE OLYMPIC GAMES.

General Discussion

International athletic contests are at present exceedingly popular the world over, and increasing interest is to be expected. Before stating the requirements of such a group of buildings as I have undertaken to design it should be of considerable value to devote a few pages to a discussion of early athletic games and their functions.

The first large athletic meets that were held with any regularity were the Olympic Games, the chief national festival of the Greeks, celebrated in honor of Zeus at Olympia, in the district Pisatis, near the junction of the Cladeus and Alpheus rivers. The institution of this ancient festival is sometimes referred to Pisus, the mythical founder of the city of Pisa; sometimes to Pelops, in whose honor several games were held at this point on the banks of the Alpheus. These games became irregular, and were finally discontinued, the regular order of the festival being said to have been restored by Heracles. The first games were held about B. C. 1453; however they are known only in Greek folklore.

Originally only the Pisitans and their immediate neighbors were admitted to the festival, but after the immigration of the Heraclidae into the Peloponnesus the Dorian also participated. Their admission dates from Iysurgus of

Sparta and Iphitus of Elis. These men, at the direction of the Delphic oracle, restored the festival of Zeus, now fallen into oblivion, and established a sacred Truce of God which insured safe conduct to all strangers thither, even through hostile territory. This accomplished, many other states sought membership, and soon all the Hellenic states, in and out of Greece, took part in the games. The festival was not only visited by individuals who attended because of personal interest, but sacred envoys were sent from the several states. In the year 393 of our era, the Emperor Theodosius, inspired by a religious zeal which seems mistaken to us today, declared the Olympic Games forever abolished. His only motive was their pagan origin.

The ancient festival was "a quinquennial celebration held in midsummer (July or August) about the beginning or close of the Greek year."^{*} After B. C. 776 a list of the victors was kept; and beginning with this year the Greek historians reckoned time in Olympiads. The duration of the games was originally about a day, but, as events were added, it was extended to at least five days.

The festival was divided into two parts the first being given up to religious exercises and the presentation of offerings to the Gods. Zeus, being the chief diety and the one in whose honor the games were held, was most highly honored. A large altar 128 feet in circumference, 32 feet high and elliptical in shape was located in the center of a sacred precinct at the foot of the hill of Cronus and here the offerings were

* Harper's Classical Dictionary

made, the Eleans, sacred embassies and other visitors participating. The second part consisted of athletic contests.

All contestants had to take the following oath before the altar of Zeus:- "Hear, O Zeus. We who stand before you now are of pure Hellenic blood, free sons of free parents, neither branded with dishonor nor guilty of any sacrilege. We have duly undergone for ten months the training to fit us to contend before thee, and we will so contend, striving earnestly by all lawful means and without guile or bribery to attain victory." Having taken this oath they entered the stadium. Parents or guardians took the oath for minors. Romans were admitted; although not of "pure" Hellenic blood their relation seems to have been sufficiently close.

As soon as the religious exercises were over the games were opened by sounds of trumpets. The competitors assembled and marched around the stadium, an official occasionally announcing their name and country. The matches were then arranged and, accompanied by the music of flutes, contested.

At first the meet consisted of a race over a course about 210 yards in length. The runners ran in heats of four, the poor men being gradually eliminated, and the winner in the final heat was proclaimed victor. In B. C. 724 a curbing was built down the middle of the track to the center of the sphendome and a double course made. The runners then made a circuit and returned to the starting point. This made possible unlimited variety in the length of the races; numerous others

were added, the number of circuits being six, seven, eight, twelve, twenty, and twenty-nine. In B. C. 708 leaping, quoit and spear throwing, and wrestling were introduced, and in B. C. 688 boxing.

A sort of dumb-bell called the halteres was held in the hand and swung backward and forward before the leap. Such assistance was undoubtedly helpful, but it must have been marvelous if it enabled Phayllus of Croton to jump 55 feet. There is quite a difference between most of the old records and modern achievements which proves that many of their events were measured by brag rather than by standard units of measurement.

In order to win final success it was necessary to win three out of the original five events; it is evident that the best all-around man was sought, one who with one or more victories in the severer tests can win a contest of contrasted character. From this point of view victory in wrestling was essential; so the wrestling contest was last and only those who had been victors in at least two other events would be bound to this last trial. Hurling with discus and spear are exercises of strength of arm, and in one with requirement of the faculty of aim; and then the standing jump and trials of speed test the lower limbs. It seems that in order to be perfectly fair the competitor for the final honors should have one at least from each of the two above groups. In every case where we hear of wrestling

as part of a pentathlic contest, the victor in the wrestling is victor in the whole. At one time a single contestant won a second place in all four events and won the wrestling, and was proclaimed the victor of the meet. However, there seems to have been no requirement as to the character of the victories before the wrestling bouts.

The hippodrome, with a course twice as long as that of the stadium was used for chariot racing (introduced B. C. 680) the course having to be traversed from eight to twelve times in both directions, at first with four horses, later (B. C. 500) with mules, and still later (B. C. 408) with only two horses. These events do not seem to have been any too popular as the winners were usually the men who could afford to buy the fastest horses and hire the most daring drivers. The Greeks preferred those games which were exhibitions of strength and courage on the parts of the competitors. Riding races were introduced in B. C. 648; and towards the end of the race the horsemen would leap from their horses and run along beside them holding the bridle in their hand. About this time a new event which combined wrestling and boxing was also introduced; and in B. C. 520 a race in which the runners were in armor was brought in. Originally only men took part in the contests, but after B. C. 652 boys also participated.

The victor (he who came forward unchallenged was declared victor) and his home was announced by a judge who presented him with a palm branch, the actual prizes not

being given out until the close of the games. Originally some article of value was given, but because of the mercenary spirit that this practice developed the Delphic oracle ordered that a wreath of wild olive leaves taken from sacred trees be given instead. Later the victors were permitted to place statues of themselves in the Altis.

The festival ended with much ceremony. The victors wearing their crowns made sacrifices to the gods; they were surrounded by their fellow townsmen, who, upon the completion of the services, rushed forward to congratulate them. A riotous reception was given for the victor on his return home, for his victory was deemed to have brought great honor on his native land at large. Sections of city walls were torn out to form an entrance for the hero, and the city was dressed in gala attire to celebrate his victory.

No more famous athletic games have been held since these were abolished until modern times. The Romans desired a more brutal form of entertainment generally, although chariot racing was quite popular with them; however, actual athletic interest was lacking. Only local meets were held and these were unimportant.

In medieval times theology and military activity occupied the minds of everyone. Athletics seem to have had no place in medieval civilization.

At present a revival of interest is everywhere apparent. This is especially true in the United States as

compulsory military service is unknown. Preparatory schools and colleges encourage athletics and clubs are to be found in every large city. No Young Men's Christian Association building is complete unless it contains a gymnasium and swimming tank, and in most cases these are the important features of the building. It seems only a step from our large intercollegiate meets to international meets, and the appearance of the latter was only to be expected.

In 1895 Pierre de Coubertin, a wealthy French sportsman, organized a company with the purpose of reestablishing the Olympic games and giving them an international character. He says, "If in reviving the Olympic Games I had merely sought to restore one of the noblest and most interesting of ancient institutions, I do not think that I should have needed excuse, for such an ambition would certainly have been both comprehensible and legitimate. - - - Besides the athletic life of the modern youth demands a revival of the Olympic Games, and in that conviction, thinking not merely of France or England, Greece or Italy, but of humanity in general, I endeavored to restore them." *

It was decided to hold the first games in Greece. This country, aside from being a strong bidder, had moral reasons for wanting them. It would have been inspiring to both competitors and spectators if they could have been held at Olympia, but there was no place to take care of the crowd

* From "Why I Restored the Olympic Games", "Fortnightly Review"

there, and it was impractical to erect a temporary city. Athens was finally selected. Here was an ancient stadion that could be used; but most of all there was sufficient hotel accommodation.

The stadion used at Athens was originally built by Lycurgus. It was located in such a place as the Greeks would probably have selected for a theater, the sides, of course, being lengthened. The seats were originally cut in the earth so the stadion consisted of a track surrounded by a low retaining wall from the top of which the earth was terraced back to the hilltops. About five centuries after it was built Herodes Atticus, in accordance with a promise made the Athenians, reconstructed it of Pentelikon marble. Ancient writers were greatly enthused over its marvelous beauty, the quickness of its construction, and its enormous size. Pausanius says, "In the work the greater part of the marble of Pentilikon was used up" and "it was a work surpassing all marvels." Since then alluvial deposits have almost concealed it. King George had it excavated in 1873. Mr. George Averoff, a wealthy and generous Greek of Alexandria, reconstructed it again in 1895-96 for the first of the modern games. He had new seats of Pentilikon marble made for it, two modeled after the chair of the Priest in the Theater of Dionysus being made for the King and Queen of Greece. Seats for the representatives of foreign powers surrounded those of the King and Queen. The sphendome was completed, but the work as a whole was unfinished at the time of the games and wooden bleachers were built on to

the incomplete marble one. Since 1896 the games have been held in temporary stadiums.

The program for the modern games is much more varied than ever before. The spirit of the ancient festival is desired and this can by no means shut out any fair form of sport. Now there is long and short distance running, jumping, turning, fencing, wrestling, shooting, rowing, yachting, bicycling, swimming, lawn tennis, and cricket, and at this the program is subject to additions. International rules have been compiled, thus eliminating all chance of unfairness.

The games have been held every four years since 1896. Most of the honors have been brought back to the United States. All of the games have been successful and if not already self-supporting are fast becoming so.

I have been unable to find a program with requirements similar to that of my own. The programs for the Grand Prix de Rome of 1852 and 1887 have aided me in forming my own, but it is in no way similar to them.

PROGRAM

It is assumed that the government of the United States, as a memorial to American athletic prestige and as a means of permanently holding the Olympic Games in this country, has granted an appropriation sufficient to build and thoroughly equip a gymnasium, stadium, and all other buildings necessary for said purpose, and has created a special fund for their maintenance.

The site, located between the cities of Baltimore and Annapolis, Maryland, is a strip of land sloping gently up from the banks of Chesapeake Bay. At this point the bay has high banks, - an excellent location for a monumental water entrance to the stadium. The size of the plot is 2,900 feet by 3,500 feet.

The committee in charge desires that the gymnasium group comprise three buildings, namely, the gymnasium, which will include a memorial hall, and two bath houses. Near the gymnasium the dining hall and dormitories will be located. At each end of the stadium a shelter is to be erected for statues and tablets memorial to famous athletes.

The requirements of the buildings shall be as follows:

GYMNASIUM

Basement Floor.

1. Lockers and dressing room for three thousand men.
2. Room for controlling the heat.

3. Janitors' rooms.
4. Gymnasium supply store.
5. Laundry for cleaning towels, etc.
6. Stairways, circulation, etc.

Main Floor.

1. A memorial hall and trophy display room which shall dominate the entire group.
2. Offices for the judges and other officials.
3. Two large halls (100' x 200') for gymnasium exercises. A track for training purposes only shall be suspended around each hall about eighteen feet from the floor.
4. Stairways, circulation, etc.

BATH HOUSES

1. A swimming pool 100' x 45' and from four to twelve feet deep.
2. Dressing rooms and showers.
3. Space for spectators.
4. Ticket offices.
5. General offices.
6. A lecture room.
7. Stairways, etc.

DORMATORIES

Basement.

1. Room for controlling the heat.
2. Janitors' rooms
3. Storage.

Main Floor.

1. Hall.
2. Magazine and lounging rooms.
3. Dressing rooms.
4. Toilets and baths.
5. Stairways, circulation, etc.

Second Floor.

1. Dormitories.

DINING HALL

Basement.

1. Heat controlling room.
2. Janitors' room.
3. Vegetable and meat storage rooms.
4. Coal bins.
5. General storage.

Main Floor.

1. Dining hall for fifteen hundred men.
2. Lounging rooms.
3. Service.
4. Kitchen.

The stadium is to contain a one-mile track, parade grounds, and ample room for jumping, vaulting, and all other forms of athletics and games participated in. The aquatic games will be played in the swimming pools or in Chesapeake Bay. The estimated capacity of the stadium is seventy-five thousand persons. Toilets for the spectators

and confectionary and tobacco stands shall be located beneath the stadium. (Arrangement of space beneath stadium not included in this problem.)

The side of the stadium next to the bay shall be left open for the ingress of spectators who may approach by water or the shore drive. The approach must be monumental and worthy of an international institution. Provision must be made for the landing of passenger steamers.

The entire project is to be built of concrete with stone facing and will be designed in the classic style of architecture. Only the best materials and most approved methods of construction are to be used.

DRAWINGS

1. General layout of buildings and grounds, showing the main floor plan of all buildings. Scale, 1 inch equal 96 feet-0 inches.

2. Front elevation. Scale, 1 inch equal 32 feet-0 inches.

3. Longitudinal section. Scale, 1 inch equal 32 feet-0 inches.

DESCRIPTION

Approaching from the river side one first goes inside the breakwater, and, landing at the base of the steps, crosses the drive and ascends the steps which are flanked on each side by monumental statuary. At the top is a long narrow plaza; after crossing this one passes through the gates into the gymnasium.

Across the stadium is the gymnasium group. In the center is the memorial hall, the wings which are set one at each side housing the gymnasium. Off at each end is a bath house which contains a swimming pool. Excepting for the color of the windows, doors, roof, and metal decoration the group is entirely white. The stadium and approach are of the same material as the gymnasium so everything harmonizes well.

The facade of the gymnasium group is composed of a high memorial hall in the center, two gymnasiums connected to the memorial hall by a vaulted passageway through a section devoted to offices, and the ends of the bath houses. The colonnade along the sides of the gymnasium shelter a promenade,- part of the circulatory system of the building. There is a basement under the entire gymnasium and under the front of the bath houses. The office section of the main building and the bath houses have mezzanine floors. Those of the bath houses are used as promenades for spectators who

are watching the water sports.

On entering the memorial hall one is impressed by the scale and dignity of the architecture. Everything is of marble except the base which is of white granite. The floor is covered with colored marble mosaic set in cement. Double rows of five Doric columns support the sides of the octagonal drum of the dome and the inner edge of the mezzanine floor. A circular stair leading to the mezzanine floor will be found in each corner pier. The architecture as a whole is simple and severe, there being little superfluous decoration. All appropriate wall space is marked with a tablet or memorial statue.

From the memorial hall a large vaulted passage-way leads directly to the gymnasium. No provision is made for spectators here, the principal function of these rooms being to serve for secret practice. The sight-seer, on arriving at the closed door of the gymnasium, will probably turn out toward the stair halls and go out on the promenade. Here the architecture is somewhat more decorative.

A door at each end of the building ushers one into what is probably the main line of circulation of the group. Across each of these is located a bath house.

The facade of the bath house is similar to the end facade of the gymnasium. On entering one is ushered into a small lobby with ticket windows on both sides. Two doors provide access to the spectators space beyond from which an easy view of the tank may be had. There is a stair at each

end of this space which leads to the promenade above. Here one may walk entirely around the pool and gaze down on the performance below.

The facades of these buildings which face the athletes' quadrangle is similar to that facing the gymnasium, only a little less ornate.

The dining hall is located directly across from the gymnasium and is on the same axis. There is an entrance at each end through which access to large lounging rooms may be had. From the lounging rooms one passes into the main dining room. A promenade provides a place for mild after-dinner exercise or rest.

The dormitories complete the quadrangle. These buildings are built only to serve their purpose and little has been spent on them to make them attractive to visitors.

The gymnasium, bath houses, and stadium are connected by a basement passage which is ramped so that it strikes the proper level. Athletes returning from the field pass under the stadium, go up a slight incline and then go into either a bath house or the gymnasium. This provision keeps the athletes and those who are inspecting the buildings separate.

CONSTRUCTION

The masonry of the entire project is to be concrete, plain or reinforced, faced with stone. The base of the gymnasium group is of granite; all above this is of white marble. The other buildings are faced with limestone.

The roofs of the bath houses, gymnasium rooms, and dining hall are supported by open steel trusses supported on steel columns. The roofs are of a gray tile which blend well with the rest of the structure.

The basements for all buildings were excavated to the proper depth and necessary footings and foundation walls built of concrete. All basement floors are of concrete with a neat cement finish.

The athletic field is built on a foundation of broken stone and brick and is provided with ample drainage facilities.

In all of the work the greatest care was taken in selecting and preparing the materials, and only the best workmanship accepted.

PLUMBING

The water is supplied by a pipe line connected to the city mains. Sanitary drinking fountains are conveniently located in all buildings. All fixtures are of white porcelain on a metal base; the floors and sides of the shower bath apartments are of gray marble. Water enters each swimming

tank through several large orifices and when no longer fit for use is drained into the bay. City pressure is used.

A drinking fountain may be found at the top of every aisle of the stadium. Here are also located the outlets which supply the water for cleaning the bleachers.

All piping is of the best wrought iron. That within the buildings is nickle plated and exposed, but that used on the stadium is not plated. Vent pipes are of cast iron. All sewers and drains are of vitrified tile layed on a cement foundation with cement joints.

HEATING

As these buildings are not all used at one time except during the summer months the heating problem is not difficult. It is highly probable that not more than one quarter of the cubic contents of the buildings will be heated in cold weather. During the summer the only heat required is that necessary to heat water for the showers and swimming pools. It is estimated that 150,000 square feet of radiation will be sufficient.

The heat will be supplied by two steam mains from a district heating plant in the city. The small amount of heat necessary would make it impractical to install a heating plant.

Concealed steel water backs along the edge of the swimming tanks furnish the necessary heat to warm the water. Special tanks to heat the water for the shower baths have been provided.

ELECTRIC LIGHTING

The electricity is furnished by a city power plant and is contracted for the same as is the water and heat. The wires are all enclosed in metal conduits which are exposed in the gymnasium, parts of the bath houses, and dining hall. They are semi-concealed in all other places excepting on the stadium and monumental approach where all wiring is concealed.

The dining room, memorial hall, offices, and assembly rooms are lighted by indirect lighting. Direct lighting is used everywhere else. All interior fixtures are of brass or bronze; those outside are of cast iron. Tungsten lights are used exclusively.

OTHER MODERN ACCOMMODATIONS

Telephone and telegraph service, and all other modern accommodations have been provided.

BIBLIOGRAPHY

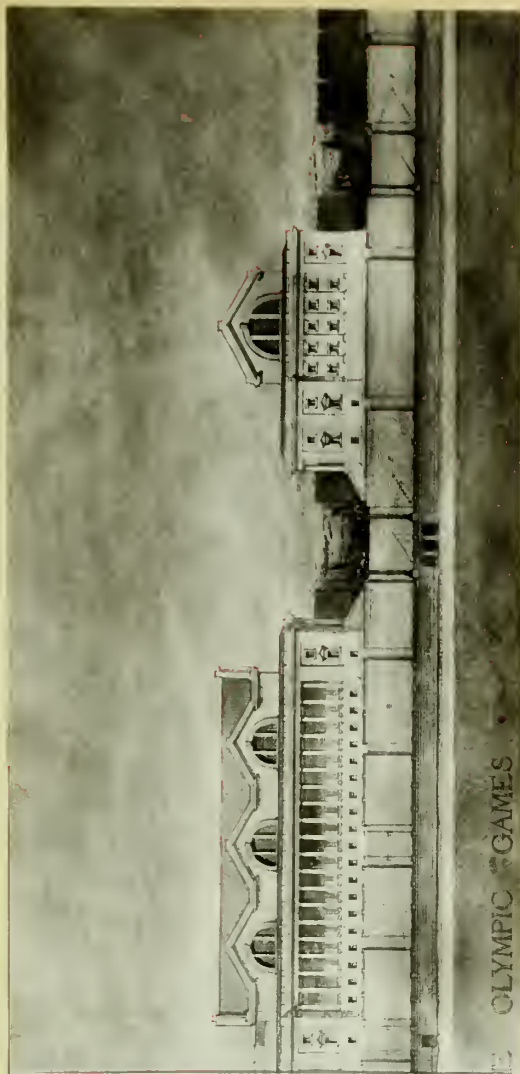
Historical

1. Harper's Dictionary of Classical Literature and Antiquities.
2. "Meeting of the Olympian Games," North American Review, June 1910, 170: 802-11.
3. "The Olympian Games of Ancient Greece," Scientific American Supplement. 66: 88-89.
4. "Old Olympic Games", Century, April 1896. 29:803-16.
5. "A Day at Olympia," Scribner's April 1896. 19:433-51.
6. "The Olympic Games," Fortnightly Review, June 1, 1896. 65: 944-57.
7. "Can We Revive the Olympic Games," Forum May 1895. 19: 313-23.
8. "Revival of the Olympic Games," Scribner's April, 1896. 19: 453-59.
9. "Why I Revived the Olympic Games," Fortnightly Review, July 1908. 90:110-15.
10. "Re-establishment of the Olympic Game," Review of Reviews, December 1894. 10: 643-46.
11. "Revival of Olympian Games," North American Review, March 1896. 162: 262-273.
12. "The Modern Olympian Game Movement," Independent, February 13, 1912. 54: 384-86.
13. "The Olympic Games at Athens in 1896." Nation, October 3, 1895.

14. "New Olympic Games," Scribner's September 1896.
20: 267-86.

DESIGN

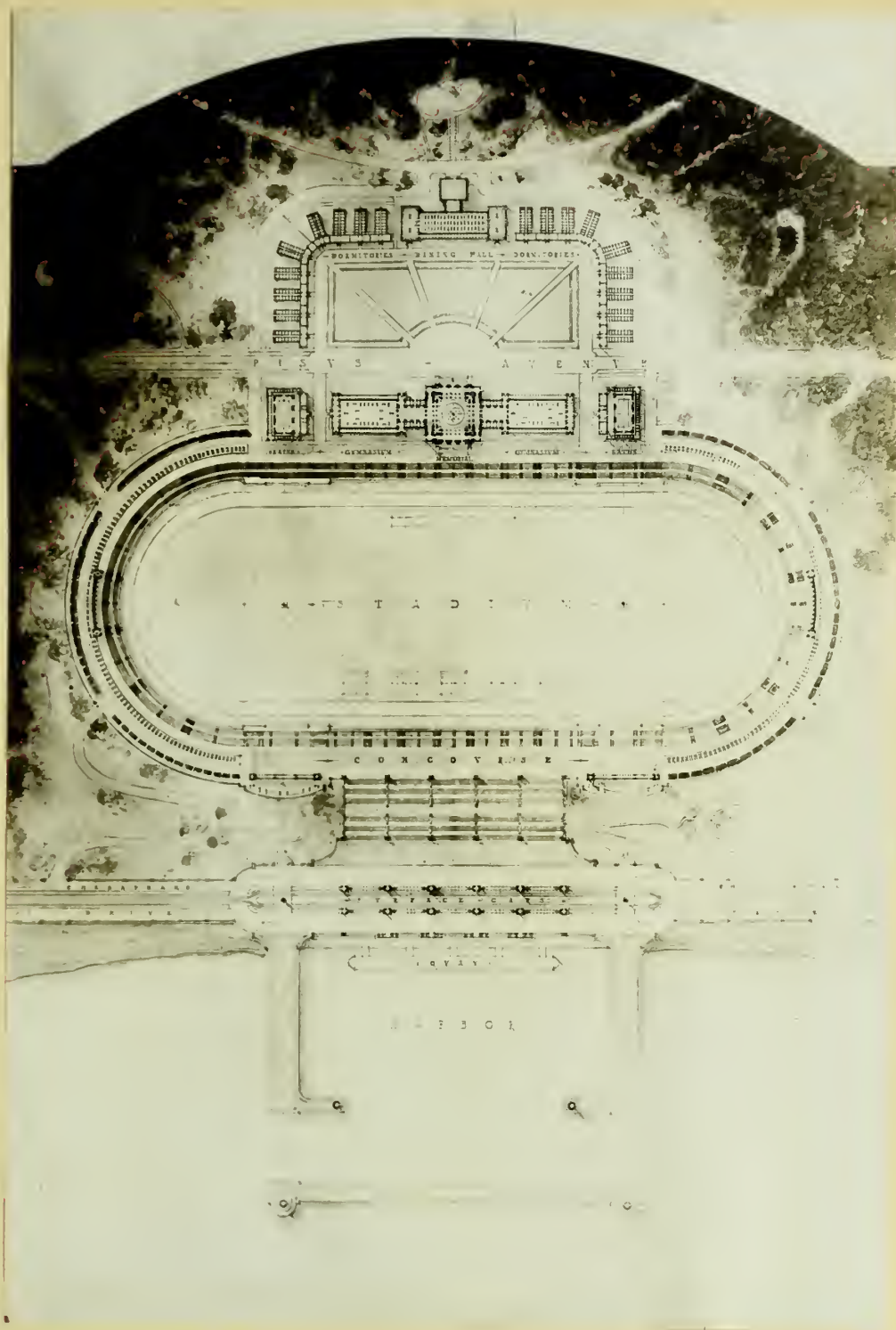
1. American Competitions.
2. "Restauration d'Olympia" Laloux-Monceaux. Paris, 1889.
3. Grand Prix de Rome Competition, 1887 and 1852.
4. A series of articles on gymnasiums by various authors.
Brickbuilder, Volume 18.
5. "A Building for the International Peace Conference,"
a thesis by E. R. Ludwig, 1911.
6. Journal of the Royal Institute of British Architects, 1889.



THE OLYMPIC GAMES



• THESIS DESIGN • A CENTRAL AND STADIUM FOR THE OLYMPIC GAMES







UNIVERSITY OF ILLINOIS-URBANA



3 0112 079095557